

HOW TO READ TOWER CRANE LOAD CHARTS

TOWER CRANE

Liebherr 200 HC
Comedil CTT561-20
Wilbert WT200e.tronic

READING LOAD CHARTS

CraneSafe Certification

Tower Crane LEARNING GUIDE
LCR.TC.LH200HC.CMCTT56120.WLWT200e.LG1

5 May 2025



CraneSafe + Fulford Certification
Tel: 604.398.5230 | www.fulford.ca

Introduction

LEARNING GUIDE

This 5 question Learning Guide is for you to use to help you get ready for the Load Chart and Rigging part of the CraneSafe Certification Practical Assessment for Tower Crane.

You will not need all of the load charts to answer the questions; the ones you need are included here. You do not need the crane manual or full load chart package to answer the questions.

The crane industry in BC has stated that operators must get a minimum of 70% correct on the load chart and rigging part of the assessment to be competent.

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Fulford CraneSafe Certification
#508 - 602 West Hastings Street, Vancouver, BC, V6B 1P2, Canada
Toll free: 1.888.952.6033
Lower Mainland: 604.398.5230
Fax: 604.398.5236
info@fulford.ca

Load Chart Questions

Question 1: Liebherr 200 HC

Determine the maximum radius that the load can be placed.

- Jib length – 120 foot
- Load weight – 17,250 pounds
- Rigging – 170 pounds

a) Calculate the GROSS LOAD: $17,250 + 170 = 17,420$ lbs

Radius and Capacities

2-PART OPERATION

Hook Radius	Maximum Capacity – Radius	ft m	60 18.3	70 21.3	80 24.4	90 27.4	98 30	104 31.7	110 33.5	120 36.7	130 39.6	142 43.3	150 45.7	158 48.3	164 50	170 51.8	180 55	187 57	197 60
197 ft 60m	17,635 lbs – 63.3 ft 8 000 kg – 19.3m	lbs kg	17,635 8 000	16,525 7 495	14,795 6 710	13,200 5 950	11,355 5 150	10,715 4 860	10,140 4 600	9,125 4 140	8,445 3 830	7,560 3 430	7,130 3 235	6,660 3 020	6,370 2 890	6,140 2 785	5,665 2 570	5,425 2 460	5,070 2 300
180 ft 55m	22,045 lbs – 55.1 ft 10 000 kg – 16.8m	lbs kg	20,770 9 420	18,000 8 170	15,790 7 160	14,880 6 730	12,500 5 670	11,800 5 350	11,090 5 030	10,050 4 560	9,190 4 170	8,360 3 790	7,810 3 540	7,360 3 340	7,055 3 200	6,790 3 080	6,280 2 850		
158 ft 48.3m	22,045 lbs – 61.7 ft 10 000 kg – 18.8m	lbs kg	22,045 10 000	20,000 9 070	17,570 7 970	15,660 7 000	13,930 6 320	13,140 5 960	12,300 5 580	11,250 5 100	10,250 4 650	9,370 4 250	8,750 3 970	8,270 3 750					
142 ft 43.3m	22,045 lbs – 68.6 ft 10 000 kg – 20.9m	lbs kg	22,045 10 000	21,960 9 960	19,450 8 820	17,830 7 960	15,475 7 020	14,640 6 640	13,650 6 190	12,350 5 600	11,420 5 180	10,470 4 750							
120 ft 36.7m	22,045 lbs – 77.1 ft 10 000 kg – 23.5m	lbs kg	22,045 10 000	22,045 10 000	21,630 9 810	19,400 8 800	17,370 7 880	16,430 7 450	15,280 6 930	14,110 6 400									
104 ft 31.7m	22,045 lbs – 83.7 ft 10 000 kg – 25.5m	lbs kg	22,045 10 000	22,045 10 000	22,045 10 000	20,930 9 490	18,760 8 510	17,750 8 050											

b) Using the correct Load Chart, find the JIB LENGTH (120 ft)

c) Determine the HOOK RADIUS:

17,420 lbs falls between 17,370 and 19,400.

Choose the larger capacity and find the Hook Radius.

The maximum Hook Radius is 90 feet.

NOTE

1 tonne (t, metric ton) = 1,000 kilograms (kg)

1 ton (short) = 2,000 pounds (lbs)

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Question 2: Comedil CTT 561-20

Determine the difference in gross capacity using 2 parts of line versus 4 parts of line.

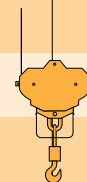
- Hook Radius – 15 metres
- Jib length – 55 metres

a) Find the GROSS CAPACITY for 2 Parts of Line using the given configuration:

10,000 kg

2-part line

Hook Radius	Maximum Radius with Maximum Load	ft m	16 5	33 10	49 15	66 20	82 25	98 30	115 35	131 40	148 45	164 50	180 55	197 60	213 65	230 70	246 75	262 80	279 85
279 ft 85m	22,045 lbs – 91 ft 10 000 kg – 27.6m	lbs kg	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	20,020 9 080	17,655 7 600	14,330 6 500	12,455 5 650	10,980 4 980	9,765 4 430	8,750 3 970	7,890 3 580	7,165 3 250	6,550 2 970	5,995 2 720	5,510 2 500
262 ft 80m	22,045 lbs – 110 ft 10 000 kg – 33.5m	lbs kg	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	20,990 9 520	18,035 8 180	15,785 7 160	13,975 6 340	12,500 5 670	11,290 5 120	10,520 4 650	9,370 4 250	8,600 3 900	7,935 3 600	
246 ft 75m	22,045 lbs – 130 ft 10 000 kg – 39.6m	lbs kg	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	21,805 9 890	19,115 8 670	16,955 7 690	15,210 6 900	13,755 6 240	12,545 5 690	11,485 5 210	10,580 4 800		
230 ft 70m	22,045 lbs – 150 ft 10 000 kg – 45.7m	lbs kg	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	19,930 9 040	17,945 8 140	16,270 7 380	14,860 6 740	13,670 6 200			
213 ft 65m	22,045 lbs – 161 ft 10 000 kg – 49m	lbs kg	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	21,540 9 770	19,380 8 790	17,590 7 980	16,095 7 300				
197 ft 60m	22,045 lbs – 174 ft 10 000 kg – 52.9m	lbs kg	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	21,120 9 580	19,180 8 700					
180 ft 55m	22,045 lbs – 180 ft 10 000 kg – 55m	lbs kg	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000						
164 ft 50m	22,045 lbs – 164 ft 10 000 kg – 50m	lbs kg	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000							
131 ft 40m	22,045 lbs – 131 ft 10 000 kg – 40m	lbs kg	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000	22,045 10 000									



NOTE

1 tonne (t, metric ton) = 1,000 kilograms (kg)

1 ton (short) = 2,000 pounds (lbs)

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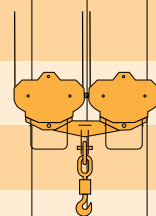
Question 2 cont'd

b) Find the GROSS CAPACITY for 4 Parts of Line using the given configuration:

20,000 kg

4-part line

Hook Radius	Maximum Radius with Maximum Load	ft m	16 5	33 10	49 15	66 20	82 25	98 30	115 35	131 40	148 45	164 50	180 55	197 60	213 65	230 70	246 75	262 80	279 85
279 ft 85m	44,090 lbs – 47 ft 20 000 kg – 14.3m	lbs kg	44,090 20 000	44,090 20 000	41,565 18 850	29,520 13 390	22,490 10 200	17,900 8 120	14,640 6 640	12,240 5 550	10,360 4 700	8,890 4 030	7,670 3 480	6,660 3 020	5,820 2 640	5,090 2 310	4,480 2 030	3,920 1 780	3,530 1 600
262 ft 80m	44,090 lbs – 56 ft 20 000 kg – 17.2m	lbs kg	44,090 20 000	44,090 20 000	44,090 20 000	36,970 16 770	28,510 12 930	22,930 10 400	19,000 8 620	16,090 7 300	13,850 6 280	12,040 5 460	10,580 4 800	9,370 4 250	8,330 3 780	7,470 3 390	6,700 3 040	6,170 2 800	
246 ft 75m	44,090 lbs – 67 ft 20 000 kg – 20.5m	lbs kg	44,090 20 000	44,090 20 000	44,090 20 000	44,090 20 000	35,140 15 940	28,440 12 900	23,700 10 750	20,190 9 160	17,460 7 920	15,300 6 940	13,540 6 140	12,080 5 480	10,850 4 920	9,790 4 440	9,040 4 100		
230 ft 70m	44,090 lbs – 77 ft 20 000 kg – 23.5m	lbs kg	44,090 20 000	44,090 20 000	44,090 20 000	44,090 20 000	41,050 18 620	33,400 15 150	28,000 12 700	23,990 10 880	20,880 9 470	18,410 8 350	16,400 7 440	14,730 6 680	13,320 6 040	12,350 5 600			
213 ft 65m	44,090 lbs – 82 ft 20 000 kg – 25m	lbs kg	44,090 20 000	44,090 20 000	44,090 20 000	44,090 20 000	44,090 20 000	35,960 16 310	30,180 13 690	25,900 11 750	22,580 10 240	19,930 9 040	17,790 8 070	16,010 7 260	14,770 6 700				
197 ft 60m	44,090 lbs – 88 ft 20 000 kg – 26.9m	lbs kg	44,090 20 000	44,090 20 000	44,090 20 000	44,090 20 000	44,090 20 000	39,020 17 700	32,870 14 910	28,290 12 830	24,740 11 220	21,910 9 940	19,620 8 900	18,080 8 200					
180 ft 55m	44,090 lbs – 99 ft 20 000 kg – 30.1m	lbs kg	44,090 20 000	44,090 20 000	44,090 20 000	44,090 20 000	44,090 20 000	44,090 20 000	37,350 16 940	32,190 14 600	28,200 12 790	25,040 11 360	22,930 10 400						
164 ft 50m	44,090 lbs – 102 ft 20 000 kg – 31m	lbs kg	44,090 20 000	44,090 20 000	44,090 20 000	44,090 20 000	44,090 20 000	44,090 20 000	38,540 17 480	33,220 15 070	29,120 13 210	26,460 12 000							
131 ft 40m	44,090 lbs – 105 ft 20 000 kg – 31.9m	lbs kg	44,090 20 000	44,090 20 000	44,090 20 000	44,090 20 000	44,090 20 000	44,090 20 000	39,770 18 040	35,270 16 000									



c) Calculate the difference in Gross Capacity:

$$20,000 - 10,000 = \underline{10,000 \text{ kg}}$$

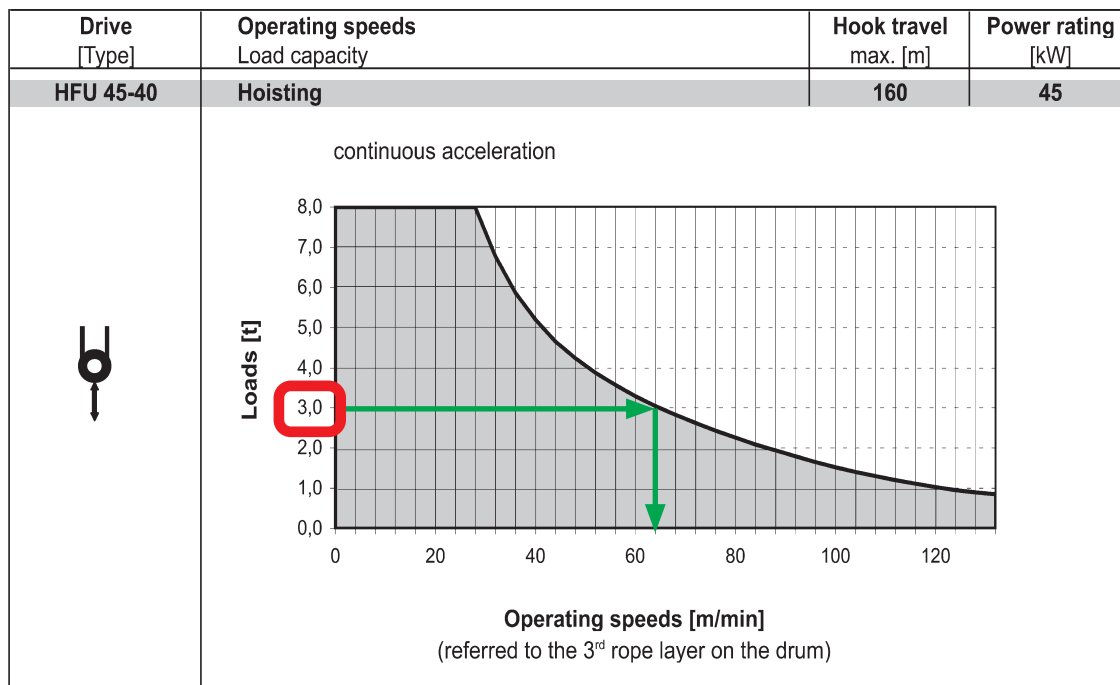
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Question 3: Wilbert WT 200e.tronic

Determine the maximum operating speed that can be used to perform this lift.

- Load weight – 3,780 kg
- Rigging weight – 140 kg

a) Calculate the Gross Load: $2,880 + 120 = 3,000$ kg
 1,000 kg = 1 tonne.
 Therefore, 3,000 kg = 3 tonnes



b) Locate the Gross Load on the Hoisting chart.

c) Determine the maximum operating speed.
 Follow 3.0 tonnes to the right where it intersects the curve.
 The maximum operating speed is 64 m/min.

NOTE

1 tonne (t, metric ton) = 1,000 kilograms (kg)

1 ton (short) = 2,000 pounds (lbs)

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Question 4: Liebherr 200 HC

Determine the weight of the tip trip test block.

- Jib length – 104 feet
- Hook radius – 104 feet
- Trip test block 5% of test block weight

a) Find the Gross Capacity of 104' jib and 104' radius: 17,750 pounds

Radius and Capacities

2-PART OPERATION

Hook Radius	Maximum Capacity – Radius	ft m	60 18.3	70 21.3	80 24.4	90 27.4	98 30	104 31.7	110 33.5	120 36.7	130 39.6	142 43.3	150 45.7	158 48.3	164 50	170 51.8	180 55	187 57	197 60
197 ft 60m	17,635 lbs – 63.3 ft 8 000 kg – 19.3m	lbs kg	17,635 8 000	16,525 7 495	14,795 6 710	13,120 5 950	11,350 5 150	10,715 4 860	10,140 4 600	9,125 4 140	8,445 3 830	7,560 3 430	7,130 3 235	6,660 3 020	6,370 2 890	6,140 2 785	5,665 2 570	5,425 2 460	5,070 2 300
180 ft 55m	22,045 lbs – 55.1 ft 10 000 kg – 16.8m	lbs kg	20,770 9 420	18,000 8 170	15,790 7 160	14,180 6 430	12,500 5 670	11,800 5 350	11,090 5 030	10,050 4 560	9,190 4 170	8,360 3 790	7,810 3 540	7,360 3 340	7,055 3 200	6,790 3 080	6,280 2 850		
158 ft 48.3m	22,045 lbs – 61.7 ft 10 000 kg – 18.8m	lbs kg	22,045 10 000	20,000 9 070	17,570 7 970	15,660 7 100	13,930 6 320	13,140 5 960	12,300 5 580	11,250 5 100	10,250 4 650	9,370 4 250	8,750 3 970	8,270 3 750					
142 ft 43.3m	22,045 lbs – 68.6 ft 10 000 kg – 20.9m	lbs kg	22,045 10 000	21,960 9 960	19,450 8 820	17,330 7 860	15,470 7 020	14,640 6 640	13,650 6 190	12,350 5 600	11,420 5 180	10,470 4 750							
120 ft 36.7m	22,045 lbs – 77.1 ft 10 000 kg – 23.5m	lbs kg	22,045 10 000	22,045 10 000	21,630 9 810	19,400 8 800	17,370 7 880	16,430 7 450	15,280 6 930	14,110 6 400									
104 ft 31.7m	22,045 lbs – 83.7 ft 10 000 kg – 25.5m	lbs kg	22,045 10 000	22,045 10 000	22,045 10 000	20,930 9 490	18,760 8 510	17,750 8 050											

b) Calculate the weight of the tip trip test block:

$$\text{Gross Load} \times 5\% = 17,750 \times .05 = \underline{887.5 \text{ lbs}}$$

NOTE

1 tonne (t, metric ton) = 1,000 kilograms (kg)

1 ton (short) = 2,000 pounds (lbs)

LEARNING GUIDE

Question 5: Comedil CTT 561-20

Determine the highest hoist gear that can be used to perform this lift.

- Hoist Unit 110 AWL 100 LLC
- 4 parts of line
- Load weight – 22,000 lbs
- Rigging weight – 225 lbs

a) Calculate the Gross Load: Load Weight + Rigging Weight = 22,000 lbs + 225 lbs = 22,225 lbs

Hoist Speed and Capacity

Hoist Unit		110 AWL 100 LLC		2 - Part Line					
147 hp (110 kW) DC hoist unit 5-speed gearbox Ward - Leonard control LEBUS™ drum SVENDBORG™ drum brake	Gear	Capacity		Line Speed		Capacity		Line Speed	
	1	up to 22,045 lbs		@	150 fpm	up to 10 000 kg		@	46 m/min
	2	up to 15,740 lbs		@	206 fpm	up to 7 140 kg		@	63 m/min
	3	up to 11,025 lbs		@	282 fpm	up to 5 000 kg		@	86 m/min
	4	up to 7,630 lbs		@	384 fpm	up to 3 460 kg		@	117 m/min
	5	up to 1,320 lbs		@	430 fpm	up to 600 kg		@	131 m/min
4 - Part Line									
2P - 470 4P - 235	1	up to 44,090 lbs		@	75 fpm	up to 20 000 kg		@	23 m/min
	2	up to 31,480 lbs		@	103 fpm	up to 14 280 kg		@	31.5 m/min
	3	up to 22,045 lbs		@	141 fpm	up to 10 000 kg		@	43 m/min
	4	up to 15,260 lbs		@	192 fpm	up to 6 920 kg		@	58.5 m/min
	5	up to 2,640 lbs		@	215 fpm	up to 1 200 kg		@	65.5 m/min

NOTE! Capacities and line speeds indicated will vary depending on the amount of hoist rope installed. This crane model may be equipped with a hoist unit other than that specified in the data above. To verify, check the serial number of the crane and refer to the Comedil CTT 561-20 Operation Manual for additional information.

b) Locate the next closest maximum capacity for 4 Parts of Line.

The maximum capacity for Gear 3 is 22,045 lbs which is too small.

The highest hoist gear for this lift is Gear 2 with a maximum capacity of 31,480 lbs.

NOTE

1 tonne (t, metric ton) = 1,000 kilograms (kg)

1 ton (short) = 2,000 pounds (lbs)